We claim:

1. An ink jet printhead chip that comprises

a wafer substrate,

a CMOS drive circuitry layer positioned on the wafer substrate, and

a plurality of nozzle arrangements positioned on the wafer substrate and the CMOS drive circuitry layer, each nozzle arrangement comprising

nozzle chamber walls and a roof wall that define a nozzle chamber and an ink ejection port defined in the roof wall, and

a micro-electromechanical actuator connected to the CMOS drive circuitry layer and that has at least one movable member that is positioned to act on ink in the nozzle chamber to eject the ink from the ink ejection port on receipt of a signal from the drive circuitry layer, the, or each, movable member being spaced between 2 microns and 15 microns from the CMOS drive circuitry layer.

2. An ink jet printhead chip as claimed in claim 1, in which the at least one movable member of each nozzle arrangement is spaced between 5 microns and 12 microns from the CMOS drive circuitry layer.

3. An ink jet printhead chip as claimed in claim 2, in which the at least one movable member of each nozzle arrangement is spaced between 6 microns and 10 microns from the CMOS drive circuitry layer.

4. An ink jet printhead chip as claimed in claim 1, in which the nozzle chamber walls and roof walls of each nozzle arrangement are configured so that the nozzle chambers are generally rectangular in plan and transverse cross section, each movable member being planar and rectangular to extend across a length of its respective nozzle chamber, with a free end of the movable member positioned between the CMOS drive circuitry layer and the ink ejection port and an opposed end of the movable member being anchored to the CMOS drive circuitry layer, the movable member incorporating heating circuitry that is electrically connected to the CMOS drive circuitry layer, the movable member being configured so that, when the heating circuitry

receives a signal from the CMOS drive circuitry layer, the movable member is displaced towards the ink ejection port as a result of differential expansion and, when the signal is terminated, the movable member is displaced away from the ink ejection port as a result of differential contraction.

5. An ink jet printhead chip as claimed in claim 1, in which the movable member comprises an actuator arm of a conductive material that is configured to define a heating circuit that is connected to the CMOS drive circuitry layer and is configured to deflect towards the wafer substrate as a result of differential expansion when an electrical signal is received from the CMOS drive circuitry layer, and the roof wall of the nozzle chamber and at least part of the nozzle chamber walls connected to the actuator arm, so that, when the actuator arm is deflected towards the wafer substrate, ink is ejected from the ink ejection port defined in the roof wall.

6. An ink jet printhead that includes a plurality of printhead chips as claimed in claim 1.

7. A method of fabricating an ink jet printhead chip having a wafer substrate, a CMOS drive circuitry layer positioned on the wafer substrate and a plurality of nozzle arrangements positioned on the wafer substrate and the CMOS drive circuitry layer, each nozzle arrangement having nozzle chamber walls and a roof wall that define a nozzle chamber and an ink ejection port in the roof wall and a micro-electromechanical actuator connected to the CMOS drive circuitry layer the actuator having at least one movable member that is positioned to act on ink in the nozzle chamber to eject the ink from the ink ejection port on receipt of a signal from the drive circuitry layer, the method comprising the steps of:

depositing between 2 microns and 15 microns of a first sacrificial material on the CMOS drive circuitry layer to define a deposition area for a layer of actuator material,

depositing said layer of actuator material on said deposition area,

etching the layer of actuator material to form at least part of each micro-electromechanical actuator, and

forming the nozzle chamber walls and roof wall by at least one of a deposition and an etching process.

8. A method as claimed in claim 7, which includes the step of depositing between 5 microns and 12 microns of the first sacrificial material on the CMOS drive circuitry layer.

9. A method as claimed in claim 8, which includes the step of depositing between 6 and 10 microns of the first sacrificial material on the CMOS drive circuitry layer.

10. A method as claimed in claim 7, in which the step of forming the nozzle chamber walls and roof wall of each nozzle arrangement includes the steps of

depositing a second sacrificial material on the layer of actuator material to define a deposit area for at least part of the nozzle chamber walls and the roof wall,

depositing a structural material on the deposit area, and

etching the structural material to form the at least part of the nozzle chamber walls and the roof wall.